

National Type Evaluation Program
Certificate of Conformance
for Weighing and Measuring Devices

For:

Load Cell
Bending Beam
Model: TB Series (See Table Below)
 n_{\max} : Class III, Multiple Cells: 5000
Capacity: 1000 lb to 10 000 lb

Accuracy Class: III

Submitted by:

Cardinal Scale Manufacturing Co.
203 E. Daugherty
P.O. Box 151
Webb City, MO 64870
Tel: (417) 673-4631
Fax: (417) 674-5001
Contact: Stephen Langford

Standard Features and Options

The TB Series is identified by the Model Number TB-XXK, where the XX suffix represents the load cell capacity in thousands of pounds.

Nominal output: 2mV/V
4-wire design

Load Cell Parameters:

Model Number	Capacity (lb)	Multiple Cell, Class III v_{\min} (lb)	Minimum Dead Load (lb)
TB-1K	1000	0.14	10
TB-2.5K *	2500	0.35	25
TB-4K	4000	0.56	40
TB-5K	5000	0.70	50
TB-10K	10 000	1.40	100
* Two load cells submitted for evaluation			

Temperature Range: -10 °C to 40 °C (14 °F to 104 °F)

This device was evaluated under the National Type Evaluation Program (NTEP) and was found to comply with the applicable technical requirements of Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Effective Date: February 17, 1999

Gilbert M. Ugiansky, Ph.D.
Chief, Office of Weights and Measures
Issue Date: March 31, 1999

Note: The National Institute of Standards and Technology does not "approve," "recommend," or "endorse" any proprietary product or material, either as a single item or as a class or group. Results shall not be used in advertising or sales promotion to indicate explicit or implicit endorsement of the product by the Institute. (See NTEP Policy and Procedures.)

Cardinal Scale Manufacturing Co.
Bending Beam Load Cell
Model: TB Series

Application: The load cells may be used in Class III scales for multiple cell applications consistent with the model designations, number of scale divisions, and parameters specified in this certificate. Load cells of a given accuracy class may be used in applications with lower accuracy class requirements provided the number of scale divisions, the v_{\min} values, and temperature range are suitable for the application. The manufacturer may market the load cell with fewer divisions (n_{\max}) and with larger v_{\min} values than those listed on the certificate. However, the load cells must be marked with the appropriate n_{\max} and v_{\min} for which the load cell may be used.

Identification: A pressure sensitive identification badge containing the manufacturer, model designation, and serial number is located on the load cell. All other required information, if not marked on the load cell, must be on an accompanying document including the serial number of the load cell.

Test Conditions: Two Model TB-2.5K (2500-lb capacity) load cells were tested at NIST using dead weights as the reference standard. The data were analyzed for multiple load cell applications. The cells were tested over a temperature range of -10 °C to 40 °C. Three tests were run on each cell at each temperature. The temperature effect on zero was measured and a time dependence (creep) test was performed. The barometric pressure test was waived due to the insensitivity of the load cell design to changes in barometric pressure.

The results of the evaluation indicate the load cells comply with applicable requirements of NIST Handbook 44.

Type Evaluation Criteria Used: NIST Handbook 44, 1999 Edition

Tested By: NIST Force Group, NIST Office of Weights and Measures

Information Reviewed By: G. Newrock (NIST), T. Ahrens (NIST)